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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,220	02/17/2004	Daniel C. Markel	22.1526	2219
7590	12/21/2005		EXAMINER KLEIN, GABRIEL J	
Patent Counsel Schlumberger Reservoir Completions P.O. Box 1590 Rosharon, TX 77583-1590			ART UNIT 3641	PAPER NUMBER

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/708,220	Applicant(s) MARKEL ET AL.	
	Examiner Gabriel J. Klein	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 17-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-16, drawn to an apparatus, classified in class 102, subclass 275.5.
- II. Claims 17-21, drawn to a detonator assembly, classified in class 102, subclass 275.8.
- III. Claims 22-30, drawn to a method for reliable activation of an explosive, classified in class 102, subclass 275.1.

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because invention I (the combination) claims first and second explosive elements but does not require either of them to be a detonator cord. The subcombination has separate utility such as a detonator assembly for anything actuated linearly in an environment exposed to pressure.

Inventions III and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially

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different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process of invention III can be practiced with another materially different product in that it does not require a gripping mechanism. The second explosive element mentioned in the process could be maintained in an axial position in any number of ways, such as by pressure balance.

Inventions III and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process of invention III can be practiced with another materially different product in that it does not require a gripping mechanism. The second explosive element mentioned in the process could be maintained in an axial position in any number of ways, such as by pressure balance.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Bryan Galloway on December 8, 2005 a provisional election was made without traverse to prosecute the invention of I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office

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action. Claims 17-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "crimping shell" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Barker (4920883).

In reference to claim 1, Barker discloses an apparatus comprising:

- one or more housing sections providing a sealed space (figure 1, elements 4 and 8)
- a first explosive element in the sealed space (figure 1, element 5)

- a second explosive element having a first portion inside the sealed space, and a second portion outside the sealed space exposed to outside pressure (figure 1, element 9)
- a gripping mechanism to grip a surface of the second explosive element to maintain a position of the second explosive element that is exposed to the outside pressure in an axial direction of the second explosive element (figure 1A, elements 6 and 7).

In reference to claim 2, Barker discloses that the inner surface of a first one of the one or more housing sections (figure 1, element 8) is contacted to the second explosive element to provide sealing engagement between the first housing section and the second explosive element (figure 1, elements 8 and 9, and column 3, lines 42-44).

In reference to claim 3, Barker discloses a first housing section comprising a boot formed of an elastic material (figure 1, element 8, and column 3, line 43), the boot contacted to the second explosive element (figure 1, elements 8 and 9).

In reference to claim 4, Barker discloses that said elastic material is an elastomer (column 3, line 43).

In reference to claim 5, Barker discloses a hard housing section (figure 1, element 4, and column 3, lines 3 and 4) that houses the first explosive element.

In reference to claim 6, Barker discloses that said first explosive element comprises a detonator explosive (column 3, lines 10-12).

In reference to claim 7, Barker discloses that said second explosive element comprises a detonator cord (figure 1, element 9).

In reference to claim 8, Barker discloses that said apparatus comprises a booster explosive provided in the sealed space and ballistically connected between the detonator explosive and the detonating cord (figure 1A, element 10).

In reference to claim 9, Barker discloses that said gripping mechanism comprises a grip tube having an inner space through which the second explosive element extends (figure 1A, element 7), the grip tube having an inherently roughened inner surface since it is capable of gripping an outer surface of the second explosive element (column 3, lines 40-42). Once the gap (figure 1A, element 14) is closed the grip tube is in firm contact with the detonating cord due to the fact that the high well-bore pressure has a tendency to push the cord inward, therefore expanding it radially enough that extrusion of the boot into the apparatus is not possible (implying a firm grip between the cord and grip tube).

In reference to claim 10, Barker discloses that said gripping mechanism further comprises a crimping shell to grip the second explosive element (figure 1A, element 6, and column 3, lines 20-23).

In reference to claim 11, Barker discloses that said crimping shell is capable of anchoring the second explosive element at a first pressure (e.g. 1 atm, standard atmospheric), and the grip tube is adapted to anchor the second explosive element at a second pressure (well-bore pressure).

In reference to claim 12, Barker discloses a grip tube that is capable of collapse at a greater than predetermined pressure in that any structure is capable of such collapse once the compressive strength of said structure is exceeded. In the event that

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the grip tube is collapsed under the well-bore pressure, it is apparent, due to the encircling geometry of said grip tube, said grip tube would grip said second explosive element.

In reference to claims 13 and 14, Barker discloses that said boot comprises an inner chamber in which the grip tube and crimping shell are located (figure 1A).

Claims 1, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Barker (4998477).

In reference to claim 1, Barker discloses an apparatus comprising:

- one or more housing sections providing a sealed space (figure 1, elements 14 and 18)
- a first explosive element in the sealed space (figure 1, element 15)
- a second explosive element having a first portion inside the sealed space, and a second portion outside the sealed space exposed to outside pressure (figure 1, element 19)

a gripping mechanism to grip a surface of the second explosive element to maintain a position of the second explosive element that is exposed to the outside pressure in an axial direction of the second explosive element (figure 2, elements 17, 23, and 24).

In reference to claims 15 and 16, Barker discloses that said apparatus further comprises a well tool (perforating gun) adapted to be activated by detonation of the first and second explosive elements (column 3, lines 43-65).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel J. Klein whose telephone number is 571-272-8229. The examiner can normally be reached on Monday through Friday 7:15 am to 3:45 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GJK


MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER